
TECHNICAL NOTE TN-969f

How to Upgrade Firmware in TM8100 and TM8200 Mobile Radios

1 July 2005
(Updated 20 March 2008)

Applicability

This Technical Note details how to upgrade the FPGA in the TM8100 and the Firmware in the TM8100 and TM8200 mobile radio platforms.

1. Save Configurations

STEP 1 Saving the Calibration file

- Open the TM8000 Calibration Application from the Start Menu of Windows. START > PROGRAMS > TAIT APPLICATIONS > TM8000.
- In this application select the com port required in TOOLS > OPTIONS.
- Read the radio's Calibration information using RADIO > READ or clicking the Yellow arrow read-from-radio icon on the toolbar.



- Once completed save this file to the PC by selecting FILE > SAVE AS.
By default this will be saved using the radio's serial number e.g.: "TM8000 Cal – 19xxxxxx.m8c".

Saving the personality file

- Open the TM8100 (or TM8200) Programming Application from the Windows Start Menu. START > PROGRAMS > TAIT APPLICATIONS > TM8000
- In this application select the com port required in TOOLS > OPTIONS.
- Read the radio's personality datafile using RADIO > READ or clicking the Yellow arrow read-from-radio icon on the toolbar. See above.
- Once completed save this file to the PC by selecting FILE > SAVE AS.

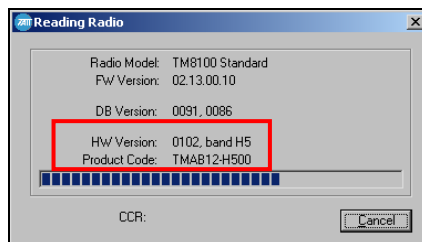
2. Upgrading TM8100 Firmware

- STEP 2a**
- Select the Download application in the TM8100 Programming Application. This is located in TOOLS > DOWNLOAD.
 - A new window will open
 - On this window you can view the currently loaded firmware version(s) by clicking **Report Configuration**
 - To change the firmware version click the **Download** button
 - A 'browse' window will open to search for the saved location of the new firmware
- Firmware is labelled TM8100_FW_vxx_xx_xx.s2.
- Once the firmware file is located click 'Open'

The Downloading will start automatically.

Downloading FPGA image

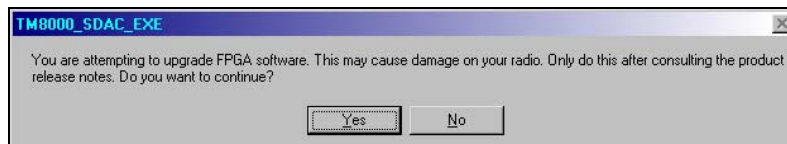
- STEP 2b**
- It is not usually required, but if the TM8100 FPGA image needs to be updated it is critical the correct version only is downloaded or this will render the radio unusable. The original TM8100's were built with 1C6 FPGA's and these can be identified with Hardware v01xx.



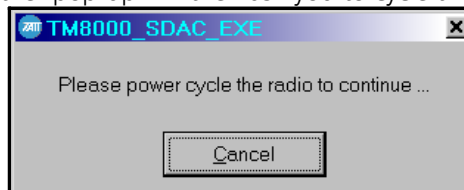
After serial number **19257949** in April 2007 TM8100's are built with 2C5 FPGA's and these are identified with Hardware v02xx.

The FPGA file for a 1C6 is TM8100_FPGA_v01xx and the FPGA file for a 2C5 is TM8100_FPGA_v02xx.

- When these files are downloaded the following pop-ups may appear:



- Click Yes
- Another pop-up will then ask you to cycle the power to the Radio



- Do this by **removing** the DC supply to the radio
 - Wait 5 seconds
 - Re-apply the DC

NOTE: Radios that have Link-1 removed will require the front panel on/off button to be pressed now.

- STEP 2c**
- The radio will then display 'UP' (or U) during the upgrade process
 - Once the upgrade process is complete the radio's display will change to 'Pr' (or P) or return to channel display

The download process is now complete.

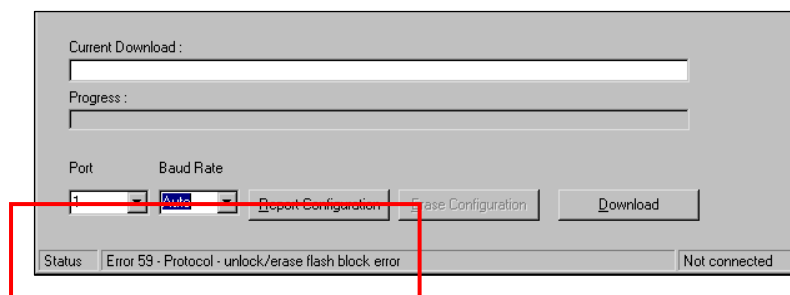
- Proceed to STEP 4

Getting Error 59?

If, during the upgrade procedure, you see:

"Error 59 – Protocol – unlock/erase flash block error" in the Download App Status display the radio has not been reset correctly as defined in Step 2b.

Ensure the DC supply is removed from the radio as this correctly resets the FPGA device.



3. Upgrading TM8200 Firmware

Upgrading TM8200 body + standard head

STEP 3a Other than using the TM8200 Programming Application instead of the TM8100 PC App, the process for upgrading the TM8200 mobile radio is exactly the same.

NOTE:

Complete STEP 1 first.

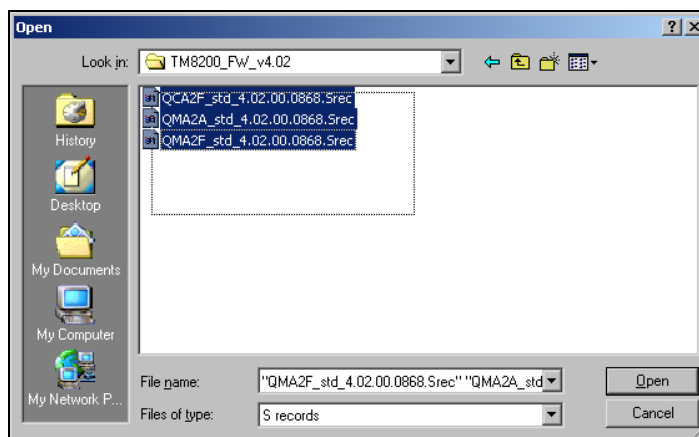
The only differences to note are the Firmware version codes for the body and the head as identified below:

QMA2A_std_x_xx_xx_xxxx.Srec – Mobile (Body DSP) Firmware.

QMA2F_std_x_xx_xx_xxxx.Srec – Mobile (Body) Firmware.

QCA2F_std_x_xx_xx_xxxx.Srec – Std Control Head Firmware.

- In the 'browse' window you should select all required files by pressing "Ctrl / Left-Mouse-Click" and clicking the required files as shown below



- Click Open and the process will continue. Each file will write to the radio body and control head in sequence

It is best to do all three files at once to avoid Firmware conflicts between the body and head.

On completion, the Download Application will refresh to display the installed versions.

Proceed to STEP 4.

Upgrading a TM8254

Step 3b

The process to upgrade a TM8254 - which is a TM8200 body and a TMAC70 Hand Held Control Head – is the same as the TM8250 except the HHCH Firmware file is called QCA4F_std..

NOTE:

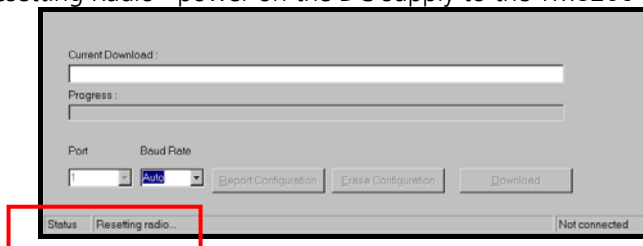
Complete STEP 1 first.

Upgrading the TM8235 STEP 3c or the body only of the TM8200

NOTE:
Complete STEP 1 first

If the requirement arises to upgrade a TM8235 radio or the body only of a TM8250/52/54/55 or TM8260, follow these steps:

- Switch off DC supply to the assembled TM8200 radio
- Select the Download application in the TM8200 Programming Application. This is located in TOOLS > DOWNLOAD
 - A new window will open.
- Click Report Configuration.
- When the 'Status' in the bottom left of the Application says "Resetting Radio" power on the DC supply to the TM8200 radio



- When reading is complete switch off the DC supply again
- To update the body's firmware and DSP versions (QMA2Fstd_xx.. and QMA2Astd_xx..) to the same as the head click the Download button.
 - A 'browse' window will open to search for the saved location of the control head firmware.
- Once the two files are located click 'Open'
- When the 'Status' in the bottom left of the Application says "Resetting Radio" switch on the DC supply to the TM8200 radio
- On completion of these the radio should reset and power-up to normal operation.

Proceed to STEP 4.

Tip:

If the TM8200 control head is not available and you have a spare TM8100 control head this can be used instead to upgrade the body alone. The upgrade process is identical to that detailed for body above; the only difference is the download application will only display the body's Firmware versions at Report Configuration. On completion, proceed to STEP 4.

Upgrading the Control Head Only

(Not TM8235)

STEP 3d

If the situation arises where the TM8250/54/55 or TM8260 control head only requires upgrading, follow these steps:

- Switch off DC supply to the assembled TM8200 radio
- Select the Download application in the TM8200 Programming Application. This is located in TOOLS > DOWNLOAD
 - A new window will open
- Click Report Configuration.
- When the 'Status' in the bottom left of the Application says "Resetting Radio" switch on the DC supply to the TM8200 radio (See screenshot in 3c above)
- When the read is complete switch off the DC supply again
- To update only the control head's firmware version (QCAxF_std_xx..) click the Download button.
 - A 'browse' window will open to search for the saved location of the control head firmware.
- Once the firmware file is located and highlighted click 'OPEN'
- When the 'Status' in the bottom left of the Application says "Resetting Radio" switch on the DC supply to the TM8200 radio
- On completion of this download the radio should reset and power-up to normal operation.

Proceed to STEP 4.

NOTE: This is not a required step for the TM8235 as the 3-digit TMAC60-0T control head contains no Firmware.

4. Write Configuration

STEP 4 Programming back the databases

- Close the Download Application window.
- In the relevant Programming Application load in the previously saved customer's datafile. Click FILE > OPEN.
- Write the database to the radio using either RADIO > PROGRAM or clicking the Red arrow write-to-radio icon on the toolbar.



- Once completed close the Programming Application.
- Click (or open) the TM8000 Calibration Application.
- Load the previously saved customer's calibration datafile. Click FILE > OPEN.
- Write this file into the radio by selecting RADIO > PROGRAM or clicking the Red arrow write-to-radio icon on the toolbar.
- Close the Calibration Application.

Upgrade process complete.

Compliance Issues

None.

CSO Instruction

Inform all sales and technical staff and dealers of the upgrade process instructions.

Related Documentation

See TN-1262 for an error on the TM8100 Hardware ID change for 2C5 FPGA's.

5. Issuing Authority

Name and Position of Issuing Officer

Graham Brenchley
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Distribution Level

Associate.

Document History

Version

(a)	Original Release	1 July 2005	GCB
(b)	Added Control Head update	5 Sep 2005	GCB
(c)	Added TM8200 Body only text	15 Sep 2005	GCB
(d)	Error 59 description and TM8235	7 August 2006	GCB
(e)	Added FPGA change in TM8100	26 November 2007	GCB
(f)	Added TM8200 HHCH update	20 March 2008	GCB